Before the FEDERAL COMMUNICATIONS COMMISSION Washington, D.C.

In the Matter of)	GN Docket Nos. 09-47,
)	09-51, 09-137
Broadband Needs In Education, Including Chan	iges)	
To E-Rate Program To Improve Broadband)	CC Docket No. 02-6
Deployment)	WC Docket No. 05-195

COMMENTS OF SUNESYS, LLC - NPB PUBLIC NOTICE #15

Respectfully submitted,

SUNESYS, LLC

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Its Attorneys

Dated: November 20, 2009

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SUMMARY

The benefits of broadband are particularly important in low income and heavily rural areas, where broadband utilization is dramatically less. Thus, any changes implemented with respect to the E-Rate Program should encourage increased participation by schools and libraries, particularly those schools and libraries in low income and rural areas. In addition, only the more wealthy school districts typically have the resources to afford access to advanced on-line content and the bandwidth such content requires. Accordingly, changes to the E-Rate Program should provide the greatest number of students – particularly those in low income and rural areas - with access to the highest quality education-related broadband content and resources.

Affordability issues with respect to un-funded computers and training present a significant barrier to deployment. Otherwise eligible low income and rural districts may delay participation in the E-Rate Program, or forego participation altogether, because they may not have the necessary computer hardware or trained personnel to actually implement covered programs. Eligible districts, particularly those in low-income and rural areas, should not be prevented from implementing broadband services due to the costs of non-funded computers and staff training. Similarly, affordability problems with respect to non-discounted portions of installation costs also present a significant barrier to deployment. While non-recurring costs related to installation, activation and initial configuration are eligible for discounts under the E-Rate Program, many eligible low income and rural districts face an affordability problem with respect to the remaining non-discounted portion of such costs. This is a major issue, as the burden of such nondiscounted fees can lead an eligible district to decide not to participate. In developing recommendations for Congress, the Commission should identify potential solutions to the above problems, including: Providing weighted discount percentages on eligible services and items for "high discount" districts and districts in rural areas; Providing other incentives; and Encouraging state-level funding for these unfunded or non-discounted E-Rate Program costs.

The use of consortiums has proven extremely successful with respect to the participation of low income districts and providing increased access to advanced education-related broadband content and resources, by providing substantial cost efficiencies. They also facilitate the bridging of the digital divide between low-income and less disadvantaged districts by allowing instantaneous sharing of advanced on-line content and applications. To encourage greater use of consortiums, more visible and effective outreach should be conducted by USAC, and State efforts to educate schools and districts should increase. Further, consortiums should be encouraged by providing weighted discount percentages for consortia and multiple district filings when a specified minimum percentage of "high discount" districts are involved, and though additional incentives.

"High-discount" schools and school districts, and schools in rural areas, often do not have the resources to obtain the minimum bandwidth requirements necessary to access such advanced video content, and the E-Rate Program rules do not sufficiently

incentivize more advantaged schools and districts to collaborate and make such advanced services available to their neighbors in need. Accordingly, the Commission should identify potential solutions to the above problems, including:

Minimum bandwidth requirements. The Commission should encourage the implementation of minimum bandwidth capabilities that allow schools to deploy "future-proof", high-capacity, high-speed networks that permit long-term access to advanced online video content. In addition, e-rate funded broadband activities should be encouraged to be IP-compatible, to facilitate implementation of wide-area networks, and long-term sustainability. E-Rate Program participants should receive significant weighted discount percentages for deploying high-capacity, IP-compatible networks.

Universal student access to advanced on-line content. The Commission should encourage universal student access to advanced education-related on-line content and resources. It is not enough to simply deploy networks *capable* of accessing advanced on-line learning resources, schools and districts must be strongly encouraged to *actually provide* such content to all or a substantial majority of students. Specifically, program participants should receive significant weighted discount percentages for demonstrating that they have provided access to advanced on-line content to all or a substantial majority of their students. Additional methods for encouraging universal student access to advanced on-line content could include: Funding to support the purchase of premium university content; Funding to support the purchase of premium content from the government; Funding for remote student access; funding for equipment/content allowing large-scale concurrent usage; and Encouraging collaboration and consortiums.

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COMMENTS OF SUNESYS, LLC – NPB PUBLIC NOTICE #15

Sunesys, LLC ("Sunesys"), by undersigned counsel, hereby submits these comments in response to the November 3, 2009 Public Notice¹ seeking comments on issues relating to the schools and libraries universal service support mechanism (the "E-Rate Program") and how such issues impact broadband deployment.

Sunesys, a leading provider of digital fiber-optic communications networks capable of providing high-speed broadband access and services, has designed, built and maintained fiber optic networks for over a decade. Sunesys is a certified e-rate service provider, and currently provides e-rate supported services in Pennsylvania, New Jersey, Ohio, Maryland, Georgia, Illinois, California and Florida. Among Sunesys' customers are approximately 180 separate school districts, comprising more than 1,300 schools nationwide who receive gigabit ethernet wide area network service capable of seamlessly converging voice, video and data and multiple other IP-based applications. As such, the issues raised in the Public Notice greatly impact Sunesys and its customers, and Sunesys is pleased to submit these comments to assist in the Commission's consideration of these important issues.

¹ Comment Sought on Broadband Needs in Education, Including Changes to E-Rate Program to Improve Broadband Deployment, GN Docket Nos. 09-47, 09-51, 09-137; CC Docket No. 02-6; WC Docket No. 05-195 (rel. November 3, 2009) ("Public Notice").

I. Changes to the E-Rate Program and Related Policies Must Encourage Greater E-Rate Participation by Schools and Libraries in Low Income and Rural Areas and Also Provide the Most Students with Access to the Highest Quality, Advanced Education-Related Broadband Content and Resources

By participating in the development of a national broadband plan, the Commission is engaged in an effort to "ensure that every American has access to broadband capability". The E-Rate Program is a critical tool for meeting that goal, by providing schools and libraries with access to affordable telecommunications and information services. Indeed, schools and libraries provide their constituencies with a variety of critical broadband-related benefits, including (i) free access to broadband services for many people who are otherwise without access, and training in the use of such service; (ii) distance education opportunities; (iii) long-term job creation (via schools) and short-term job development and creation (via libraries). Such benefits are particularly important in low income and heavily rural areas, where broadband utilization is dramatically less than in middle-income and wealthier areas. However, too often, otherwise eligible schools and libraries face barriers which delay or prevent their participation in the program. Thus, any changes implemented with respect to the E-Rate Program should encourage increased participation by schools and libraries, particularly those schools and libraries in low income and rural areas.

Broadband technology is literally transforming the learning opportunities for today's students, including applications that allow "online collaboration,

² "In the Matter of A National Broadband Plan for Our Future", GN Docket No. 09-51, Notice of Inquiry, p.3 (rel. April 8, 2009).

videoconferences...real-time video exploration... [and] virtual field trips...."

Increasingly, advanced broadband learning opportunities for today's K-12 students originate not only from other K-12 schools, but also from educational/scientific/vocational video content available from universities, hospitals, government agencies, and broadcasters/cable providers. While this trend is a positive one, usually only the more wealthy school districts typically have the resources to afford access to such advanced on-line content and the bandwidth such content requires.

Accordingly, in considering changes to the E-Rate Program, the Commission should attempt to adopt changes which provide the greatest number of students – particularly those in low income and rural areas - with access to the highest quality education-related broadband content and resources.

In short, while numerous commenters will suggest changes to the E-Rate Program for many different reasons, Sunesys submits that changes should focus on encouraging increased e-rate participation by schools and libraries, particularly those schools and libraries in low income and rural areas, and such changes must be aimed at providing those districts with greater access to advanced education-related broadband services.

II. Significant Barriers to School and Library Broadband Deployment In Low Income and Rural Areas Include the Costs of Non-Supported Computers and Training, as well as the Non-Discounted Portion of Installation Costs [1(c)]

A. Affordability Problems for Un-Funded Computers and Training

Currently, end-user computers and staff training are not covered as eligible services in the E-Rate Program. This presents a significant barrier to deployment,

³ See Rintels, Jonathan, "An Action Plan for America; Using Technology And Innovation To Address Our Nation's Critical Challenges", Benton Foundation, 2008, p.21 (internal citation omitted).

particularly for low income and rural districts. Specifically, otherwise eligible low income and rural districts may delay participation in the E-Rate Program, or forego participation altogether, because administrators realize that even if they are reimbursed for covered expenses, they may not have the necessary computer hardware or trained personnel to actually implement the covered programs. This creates an untenable "chicken and the egg" dilemma for districts otherwise inclined to participate in the E-Rate Program; namely, should eligible districts spend the significant time, and human and capital resources needed to gain access to much needed network capacity, without any assurance that they will be able to actually use the network? Clearly, gaining access to network capacity is a critical component of a district's success, but it is not the only component. Eligible districts, particularly those in low-income and rural areas, should not be prevented from implementing broadband services due to the costs of non-funded computers and staff training.

B. Affordability Problems for Non-Discounted Portions of Installation Costs

Even when certain costs are discounted under the E-Rate Program, the remaining non-discounted portions of such costs may be too large a burden for low-income and rural districts to bear. In many cases, providers such as Sunesys offer faster, higher capacity networks than those currently used by eligible school districts, and the benefits of such higher capacity networks are clear. However, the deployment of competitive network infrastructure necessarily involves non-recurring installation costs, particularly in very rural areas where the only existing option is the incumbent's lower capacity services over existing infrastructure. While non-recurring costs related to installation, activation and initial configuration are eligible for discounts under the E-Rate Program,

many eligible low income and rural districts face an affordability problem with respect to the remaining non-discounted portion of such costs. This is a major issue, as the burden of such non-discounted fees can lead an eligible district to decide not to participate.

Accordingly, in developing recommendations for Congress in connection with a national broadband plan, the Commission should identify potential solutions to the above problems, including:

- Providing weighted discount percentages on eligible services and items for "high discount" districts (e.g., districts with e-rate discounts of 80% or higher) and districts in rural areas, to help close the affordability gap that exists between such districts and their more wealthy neighbors.
- Providing other incentives (e.g., tax incentives) to low income and rural districts to help them afford non-funded computers and training, and to help those districts afford the remaining portions of non-recurring installation costs that are not discounted.
- Encouraging state-level funding for these unfunded or non-discounted E-Rate Program costs. A good example of such state-level assistance is found in Pennsylvania, where the state's "E-Fund" program is specifically intended to "augment or complement E-Rate" funding, and is focused on funding "non-recurring charges (e.g., charges associated with infrastructure facilities build-out, one-time installation charges). Unfortunately, the Pennsylvania E-Fund program appears to be the exception, leaving many eligible districts without a state-level funding source to supplement the discounts provided under the federal E-Rate Program.

Such solutions would encourage greater participation in the E-Rate Program by schools and libraries in low income and rural areas. By achieving greater participation in the E-Rate Program, the Commission will help to ensure that the greatest number of students will receive access to the highest quality, advanced education-related broadband applications and resources.

⁴ "E-Fund - 2009 Program Background, Guidelines and Application Instructions", Office of Information and Educational Technology, Pennsylvania Department of Education, p. 14 (July 2009).

III. The Use of Consortiums Provides Significant Successes for Low Income and Rural Districts and for Providing Greater Wide-Area Access to Advanced Education-Related Broadband Content and Resources [2(a)]

Students are not benefited by merely having their schools provide basic network connectivity. Schools and school districts must be encouraged to collaborate and establish access to advanced on-line content and share such advanced content with other districts and schools. To that end, eligible schools, school districts and libraries may participate in the E-Rate Program individually or as part of a consortium. Sunesys' involvement with consortiums has proven extremely successful with respect to the participation of low income districts and providing increased access to advanced education-related broadband content and resources. Sunesys, for example, currently provides service to consortiums or consortium leaders in 3 states, including in Eastern and Western Pennsylvania where Sunesys serves 8 consortiums, connecting approximately 80 districts. Based on Sunesys' involvement with these types of collaborations, the benefits of such consortiums include:

- Providing substantial cost efficiencies for participating low-income schools, who benefit from shared network availability (archiving, filtering, etc.), as well as shared IT and administrative resources and expertise.
- Bridging the digital divide between low-income and less disadvantaged districts, by providing a ready-made platform for the instantaneous sharing of advanced education-related broadband content and applications, including distance learning, educational programming and access to university-level educational content. Less disadvantaged consortium members, naturally, have greater access to these advanced broadband learning opportunities. The consortium mechanism, by its very nature, provides low-income members with partners who are willing and able to share this critical content.
- Providing the capability for true wide-area, large-scale connectivity across multiple districts and consortiums, which is consistent with the Commission's

⁵ Id. at p.8.

goal of "stimulat[ing] the adoption of broadband more widely in communities...."

While consortiums are valuable tools for achieving the Commission's goals for broadband deployment, more must be done to encourage the use of such mechanisms, particularly by schools in low income districts, including for example:

- Requiring more visible and effective outreach by USAC to schools, libraries and States regarding the consortium mechanism and its benefits to students, as well as the procedures involved for participation. In this regard, although USAC does address consortiums in its Schools and Libraries website, USAC should place additional, and more visible, emphasis on this issue for potential participants. Such emphasis should include a more visible web presence for the consortium concept, and workshops/field hearings in low income areas.
- Increasing State efforts to educate schools and districts regarding the consortium mechanism and its benefits to students. In this regard, State outreach to potential participants appears to be very uneven, with some States providing little to no information on the consortium issue, and others (e.g., California and Pennsylvania) providing extremely well-organized and formal instruction.⁷
- Providing weighted discount percentages for consortia and multiple district filings when a specified minimum percentage of "high discount" districts are involved in the collaboration.
- Establishing additional incentives (e.g., tax incentives) to encourage counties, districts and schools to include low income districts in consortium arrangements.
- Ensuring that "high discount" districts are able to afford computers and training, as well as non-recurring installation costs that are not discounted under the E-Rate Program. See Section II above.

Illinois, for example, is one state which could - in Sunesys' opinion - benefit from increased use of consortiums. In Illinois, many districts contain only high-schools, and

⁶ Public Notice, p.1. In this regard, Sunesys also serves two additional county-wide "Intermediate Units" in Pennsylvania, which connect 25 more school districts.

⁷ See, e.g., Invitation Letter from California Department of Education dated September 11, 2009 to Select County and District Superintendents and Charter School

many other districts are comprised of only elementary and middle schools. Although all Illinois students would benefit from advanced on-line content, the fact is that high-school districts have higher access to/utilization of advanced services, versus elementary/middle school districts. So, without using consortiums, Illinois high-school districts disproportionately bear the burden of administrative and network costs for advanced services, and the elementary/middle schools have far less access and utilization. Greater use of K-12 consortiums, on the other hand, would provide a "win-win" scenario, by distributing costs among all participating schools, and increasing access to all students.

IV. To Increase Demand for Broadband Use in Education and Ensure its Successful Use, the Commission Should Encourage Minimum Bandwidth Requirements and Universal Student Access to Advanced Education-Related Content and Resources [2(c)-(d)]

As discussed above, the substantial advantages of advanced education-related broadband connectivity include videoconferences, virtual field trips and educational/scientific/vocational video content from universities, hospitals, government agencies, and broadcasters/cable providers. In Sunesys' experience, this remarkable advanced on-line content is a significant demand driver for broadband in the education context. However, "high-discount" schools and school districts, and schools in rural areas, often do not have the resources to obtain the minimum bandwidth requirements necessary to access such advanced video content, and the E-Rate Program rules do not sufficiently incentivize more advantaged schools and districts to collaborate and make such advanced services available to their neighbors in need. Accordingly, in developing

Administrators, titled "Kindergarten Through Grade Twelve High Speed Network Consortium Letter of Agency", accessed at: http://www.cde.ca.gov/nr/el/le/09ltr0911.asp.

recommendations for Congress in connection with a national broadband plan, the

Commission should identify potential solutions to the above problems, including:

A. Minimum Bandwidth Requirements. The Commission should encourage the implementation of minimum bandwidth capabilities that allow schools to deploy "future-proof", high-capacity, high-speed networks that permit long-term access to advanced on-line video content. For example, nearly all of Sunesys' network connections provide 1Gbps or greater connectivity speed, which provides significant advantages over many incumbent networks.

In addition, e-rate funded broadband activities should be encouraged to be IP-compatible, to facilitate implementation of wide-area networks, and long-term sustainability.

E-Rate Program participants should receive significant weighted discount percentages for deploying high-capacity, IP-compatible networks. For participants unable to immediately deploy IP-compatible networks at such high speeds at the outset, the Commission should specify "Bandwidth Upgrade Benchmarks" that provide increased weighting of e-rate discounts as participants upgrade their network speeds within specified timeframes.

This example shows how "Bandwidth Upgrade Benchmarks" could work for a district ("District X") normally eligible for an 80% e-rate discount:

- By "Benchmark Date #1" District X upgrades to "Benchmark 1" speed ("low"), District X receives a weighted 82% discount for eligible services;
- By "Benchmark Date #2" District X upgrades to "Benchmark 2" speed ("medium"), District X receives a weighted 84% additional discount for eligible services;
- By "Benchmark Date #3" District X upgrades to "Benchmark 3" speed (high), District X receives a weighted 86% additional discount for eligible services.
- B. <u>Universal Student Access to Advanced On-Line Content</u>. The Commission should encourage universal student access to advanced education-related online content and resources. It is not enough to simply deploy networks *capable* of accessing advanced on-line learning resources, schools and districts must be strongly encouraged to *actually provide* such content to all or a substantial majority of students.

Specifically, program participants should receive significant weighted discount percentages for demonstrating that they have provided access to advanced on-line content to all or a substantial majority of their students. And for participants unable to immediately provide universal student access, the Commission should specify "Advanced Content Benchmarks" that provide

increased weighting of e-rate discounts as participants make more advanced on-line content available to increasing numbers of students.

Additional methods for encouraging universal student access to advanced online content could include the following:

- Funding to Support Purchase of Premium University Content. The
 Commission should take steps to encourage funding of the purchase of
 premium on-line educational content originating from universities and
 other institutions of higher learning, particularly when such content
 benefits schools in "high-discount" districts and rural areas.
- Funding to Support Purchase of Premium Content from the Government. The Commission should take steps to encourage funding of the purchase of premium on-line educational content originating from government agencies and government-funded programs, particularly when such content benefits schools in "high-discount" districts and rural areas.
- <u>Funding for Remote Student Access</u>. The Commission should extend erate funding for the infrastructure necessary to allow students to access their schools' intranet, advanced on-line content, and other classroom materials from their homes.
- Funding for Equipment/Content Allowing Large-Scale Concurrent Usage. At Section II above, the problem of funding for individual end-user computing equipment is discussed. While it is appropriate to address the problems associated with such individual end-user equipment, there are other types of equipment (e.g., large-screen monitors/LCDs, projectors, DVRs) that can substantially further the goal of universal student access to advanced on-line content. Such equipment can provide a centralized, large-scale viewing platform for hundreds of students at one time (e.g., in an auditorium), thereby achieving significant economies of scale. The Commission should extend e-rate funding for the equipment necessary to allow the deployment of such large-scale viewing platforms for 100 or more students, particularly when such platforms are to be deployed in "high-discount" districts and rural areas.
- Encouraging Collaboration and Consortiums. The Commission should encourage collaboration among schools and districts, including the use of consortiums, to allow more advantaged consortium members to instantaneously share advanced education-related broadband content and applications with their fellow "high discount" partners. As described above in Section III, the Commission should consider providing weighted discount percentages for consortia and multiple district filings when a specified minimum percentage of "high discount" districts are involved in the collaboration. In addition, additional incentives (e.g., tax incentives) should be established which encourage counties, districts and schools to include low income and rural districts in consortium arrangements.

V. Proposed Modifications [11]

Above, Sunesys has set forth in detail various proposals involving modification to the E-Rate Program and related policies. The chart below summarizes Sunesys' proposed modifications, with cross-references to detailed discussions in the above text:

Problem(s)	Proposed Modifications	Benefits of Modifications	Cross-Reference
Affordability problems related to: (i) un-funded end-user computers/staff training; and (ii) the non-discounted portions of installation fees, present significant barriers to deployment	- Provide weighted discount percentages for "high discount" districts & rural districts - Provide other incentives (e.g., tax incentives) to low income/rural districts - Encourage state-level funding for these unfunded or non-discounted E-Rate Program costs	- To help close the affordability gap that exists between low-income and rural districts and their more wealthy neighbors - To help low income and rural districts afford computers and training, and to help them afford the remaining portions of non-recurring installation costs that are not discounted	Section II Pages 3-5
Insufficient encouragement by the Commission and States for consortiums results in the insufficient use of Consortiums	- Require more visible and effective outreach by USAC to schools, libraries and States - Increase State efforts to educate schools and districts - Provide weighted discount percentages for consortia involving a specified minimum percentage of "high discount" districts - Establish additional incentives (e.g., tax incentives) to encourage participation of low income and rural districts in consortiums	- To help increase usage of consortiums, which provide substantial cost efficiencies and help bridge the digital divide between low-income/rural and more advantaged districts - To help address the very uneven levels use of consortiums in various states - To provide increased capabilities for wide-area, large-scale connectivity across multiple districts and consortiums	Section III Pages 6-8

Problem(s)	Proposed Modifications	Benefits of Modifications	Cross-Reference
"High-discount" districts and schools in rural areas often do not have the resources to obtain the minimum bandwidth requirements necessary to access advanced education-related video content, which results in too few "high-discount" schools and school districts, and schools in rural areas, having access to advanced education-related video content	- Encourage the implementation of minimum bandwidth capabilities and speeds, and IP-compatible networks by: (i) Providing significant weighted discount percentages for completing deployment of such networks; and (ii) Specify "Bandwidth Upgrade Benchmarks" for participants needing need time to upgrade their networks to these requirements - Encourage universal student access to advanced education-related on-line content and resources by: (i) Providing significant weighted discount percentages for providing access to advanced content to all or a substantial majority of students; (ii) Specify "Advanced Content Benchmarks" for participants needing time to provide access (iii) Funding to support purchase of premium university content, and premium content from government/agencies (iv) Funding for remote student access (v) Funding to allow large-scale concurrent usage (vi) Encouragement of collaboration and consortiums	- Allow schools to more easily deploy "future-proof", high-capacity, high-speed networks capable of providing access to advanced education-related video content. - Allows schools to not only deploy networks capable of accessing advanced on-line learning resources, but also to actually provide such content to all or a substantial majority of students.	Section IV Pages 8-10

VI. Conclusion

WHEREFORE, for the foregoing reasons, in developing recommendations for Congress in connection with a national broadband plan, Sunesys respectfully requests that the Commission address the issues set forth in these Comments.

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